THE VETERINARY RECORD

A Weekly Journal for the Profession.

EDITED BY WILLIAM HUNTING, F.R.C.V.S.

No. 1211. SEPTEMBER 23, 1911. VOL. XXIV.

THE REGISTERED EXISTING PRACTITIONER.

A correspondent writes "Can registered practitioners use the words "veterinary surgeon" on brass plate or billheads? It was only a few years ago, when a registered man was successful in preventing the R.C.V.S. from removing his name from the list, that the position of registered practitioners under the Act became clearly understood. That position is far from satisfactory; but to enforce it strictly would be grossly unfair to the registered man.

Any man could assume the title of "veterinary surgeon" prior to the Act of 1881, which was designed to ultimately limit the title to Fellows and Members of the R.C.V.S. As in the allied cases of dentists and pharmacists, however, cognisance had to be taken of the fact that the Act, if applied universally at once, would bear hardly upon many men who had hitherto been using the title with perfect legality. Some provision had to be made for these. It was therefore decided that all unqualified men who could produce the requisite evidence of having continuously practised veterinary surgery for at least five years before the passing of the Act should, upon payment of fees, be placed upon a separate register as "Existing Practitioners." This was adequately provided for by Section 15 of the Act, which contains a sub-section stipulating that no such Registered practitioner shall be deemed to be a member of the R.C.V.S.

The men, then, proved their claims and paid their fees, believing that they were purchasing the right to work as veterinary surgeons of an inferior grade. That was the intention of the framers of the Act, but an error of omission—an evident error—rendered it nugatory. Registered men should have been exempted, as were licentiates of the Highland and Agricultural Society, from the sweeping prohibitive clauses of Section 17. They were not exempted, and the omission clearly defeats the purpose of Section 15. The only right the Registered man has under the Act is the permanent inclusion of his name in what might be made a secret list—for the Council are not obliged to publish this list of registered men, and, as the case mentioned above proved, the Council cannot remove any name from it. It was not with this idea that the registered men paid, and the Council of that day received, fees which altogether amounted to a large sum of money. The whole question is of very temporary importance, but certainly the men should rank as recognised though unqualified veterinary practitioners, and the Council should have control over them individually.

AN UNUSUAL SKIN AFFECTION IN CATTLE.

By E. WALLIS HOARE, F.R.C.V.S.

On September 2nd I was asked to investigate a peculiar skin disease affecting the limbs of a number of cattle. On attending next day I found that 15 animals were attacked.

The history was as follows: About three weeks previously a black 1½ year old bullock was found with a swollen fore leg, the swelling being most marked in one knee joint. At the flexure of this joint deep fissures were found from which a serosanguineous fluid exuded Thick crusts next formed, which gradually peeled off, leaving a raw surface with no tendency to heal.

On examining this animal I found both knees swollen, and the posterior aspect of one knee especially showed deep fissures and an appearance as if a strong biniodide of mercury blister had been applied to the part. The scaly condition also extended to the metacarpal region.

On examining the other cattle, various stages of the skin affection could be observed on them. The majority of the animals were two-year-old bullocks in prime condition, a few were three-year-olds.

The first symptom to attract attention was a swollen condition of the knees; in some of the cases careful examination showed the presence of a number of small sized pustules with a hard base and deep-seated. This was evidently the first stage. In others, the skin lesions were exactly similar to what is known as "mallenders" in horses.

Many of the cases showed deep-seated ulcers, evidently the result of the animals constantly licking the parts.

In only a few of the cases were the hind limbs involved, and the lesions in this region were slight. Some of the animals developed abscesses at the back of the knee and in front of the shoulder, evidently due to a secondary infection.

The course of the disease is slow, as the first animal attacked still shows swollen knees and a scaly condition of the posterior aspect of these joints. The herd consisted of 28 animals, and of these 26 are now affected; by a strange coincidence the two that escaped suffered for some time from a mild attack of ringworm.

Two milch cows were attacked, while a mare and a donkey showed the typical skin affection at the back of the knees, the mare also developed the affection behind the elbow.

Although in some of the cases progression was painful, the animals did not lose condition, and constitutional disturbance was absent. In some instances an entire fore leg was swollen, and the

scaly condition of the skin extended to the fetlock, in others various parts of the body showed slight lesions. In every case the primary seat of the disease was at the posterior aspect of the knee.

Some of the animals seemed to suffer from a very mild attack, and recovered in a short period of time. Others appeared to be infected with a very virulent type of the disease, as the swelling of the limb was extensive, and the ulcerations very deep seated and showed no tendency to heal.

As regards the etiology, nothing could be discovered. The pasture is good; the water supply is from a river. Into this river the affluent from a creamery flows at a little distance up the stream. The cattle during the hot weather used to stand in this stream for several hours daily. But this affluent has flowed into the stream for several years without causing any apparent damage to cattle; moreover the milch cows had not access to this stream.

The disease has spread to a cow and some young cattle on a neighbouring demesne, although there was no contact between these animals and the affected ones. Enquiry has elicited the fact that further outbreaks have occurred on farms at a distance from the primary outbreak. In various parts of the country I have found on enquiry from practitioners that similar cases have occurred, but only in a small number of animals. So far as I am aware at present, the disease has only appeared in enzootic form in the Muskerry district.

On looking up the literature of skin diseases, the only affection that corresponds to the present outbreak is "eczema of the limbs" in cattle, described by Moussu and Dollar, and said to be due to feeding on malt and potatoes. These factors are absent in the present instance.

Impetigo in cattle, described by Cadéac, also bears some points of resemblance to the cases I mention.

Why the disease should chiefly affect the posterior aspect of the knees is a point that needs elucidation, also why the fore limbs are especially the seat of the disease. I should gladly welcome any information as to the nature of the disease, probably there are practitioners who have met with similar outbreaks. Up to the present I must confess that it has completely puzzled me. (See postscript, p. 200)

TWO CASES OF SUB-SACRAL ABSCESS.

On reading a case of sub-lumbar abscess in *The Record* of 9th inst. which unfortunately ended in death, I thought the following cases might be of interest. I note the case reported was in a grey horse, the following subjects were also grey horses.

Case I. Grey gelding, age six years, was admitted to infirmary September last year, had been on military manœuvres and was returned having his tail slightly thickened and showing several small abscesses on the under surface. He had been docked, but not recently, the stump of the tail appeared healthy, there were also two small abscesses at the root of the tail, one on each side of the anus. These were opened and discharged a thick creamy pus which was suspicious of the botriomyces. Treatment consisted of thoroughly disinfecting the tail, the abscesses being injected with Tinct. iodine, and Pot. iodide given internally. The tail, however, began to enlarge and the pus to increase in quantity, especially in the perineal region; the animal began to show signs of systemic disturbance, the temperature began to rise and the animal's appetite was decreasing. As the source of the infection appeared to be the tail I decided to amputate it. The animal was deeply chloroformed and the tail removed as close to sacrum as possible. The stump was well syringed out with iodine on the under surface of the bone, this being the tract of infection. The amputated tail was found to be full of sinuses, pus was present in great quantity between the skin and the under surface of the vertebræ. The animal made an uninterrupted recovery after being under treatment for about six weeks.

Casi II. A grey van gelding, age five years, admitted to infirmary February this year. This animal when admitted did not show any abscesses in the region of the root of the tail, but the middle of the tail was badly bruised; the dealer had evidently fastened another horse to it by means of a rope, and this was undoubtedly the cause of the infection. In a few days the tail began to swell, several incisions were made in the tail and a considerable quantity of thick pus let out. Owing to the considerable depreciation in value that would take place on amputation of the tail, I decided to leave that as my last resource. Numerous abscesses appeared on the under surface of the tail and the tendency to spread was always in an upward direction; very soon pus appeared at sides of anus and above the root of tail; by inserting the finger in one of these at side of anus, pus could be also evacuated from under the sacrum. Although iodine was fully used, we seemed quite unable to prevent fresh abscesses forming in the perineal region. Amputation was then resorted to; some difficulty occurred in checking the hæmorrhage, but apart from this the animal began to improve daily. It was under treatment for about seven weeks.

Peckham, S E. H. D. Jones, M.R.C.V.S.

DIGESTIVE TROUBLES OF THE OX.

By James Gregg, Belfast.

I am delighted to see something original on this vexed question. The article from the pen of my at one time fellow student, Mr. Hugh Begg, is worthy of him, and of the profession of which he is an active member. Mr. Begg was looked up to by his fellows in the old days, as a man of promise, and I am sure that all those who were then associated with him, now scattered over the world, will say with me that the article referred to is the best original contribution on the subject, and that our prognosis has been fully justified.

My own observations have led me to place the ordinary digestive troubles of the ox under two headings.

(1) Those due to chills.
(2) Those due to errors of diet.

The first is perhaps not so common in the neighbourhood of cities owing to better care and better housing of milk cattle. If these so-called chills cause a rush of blood from the superficial vessels to those of the internal organs—we may take it that continuance for a short time will produce congestion, which may go the length of producing pain and inconvenience owing to pressure (such as occurs in rheumatism.)

Different modes of treatment, to a certain extent, prove this theory to be correct. Large doses of salts usually make the animal worse, *i.e.* increase the irritation and probably cause the congestion to end in inflammation of the abomasum or some other organ—whereas prompt bleeding and the administration of heating carminatives give relief in a few hours.

In looking back to my boyhood days, I can remember a handy man who could always cure such cases without any bad after effects. He bled and gave "the five ounces," viz., ginger, pepper, saltpetre, cream of tartar and sulphur. During the earlier years of my professional life I did not bleed, and I did not use such simple remedies: the result was that I was frequently disappointed. It was not until I arrived at years of discretion that I would deign to copy the handy man.

The second class is very common in the neighbourhood of cities, where forced feeding is the order of the day. It may be at once conceded that fluids pass from the rumen to the abomasum whether cudding goes on or not, therefore when the former is filled with highly concentrated nitrogenous food, which, owing to its sour flavour or other cause, the cow ceases to lift for re-chewing, it is reasonable to suppose that the stasis causes poisons to be generated, which have a serious effect on the nervous system. We know that the stomachs become paralysed, and that not infrequently the animal becomes helpless, and is unable to rise. Grass staggers, due to eating the nitrogenous blossoms, is an example of the same thing, though it has another set of symptoms. Purgatives, especially salts, in such cases increase the depression and hasten death. I find the following, drenched every three hours for six times, to act better than any other which has come my way:

℞ Zing. Pulv.
Sinapsis
Sodii. Chlor.
Sodæ. Bicarb. } *aa.* ʒii.
Ac. Carbolic
Cayenne } *aa.* ʒi.

No food, but water *ad lib.*

After making numerous post-mortems on all classes of cattle, I have long since thought so-called impaction of the third stomach a myth, and accordingly have set to myself the task of finding something harmless to neutralise the ferments which are undoubtedly generated during derangement of the digestive mechanism, as I am firmly convinced, and have ample evidence to prove, that no treatment at all is far preferable to treatment along recognised lines.

ABSTRACTS FROM FOREIGN JOURNALS.

Quarter-Ill in the Horse.

H. Levens, of Goch, who recently recorded a case of equine quarter-ill (see *Veterinary Record* of June 24th, 1911, p. 802) now reports another.

The subject was a very valuable Belgian pedigree mare, about three and a half years old. One morning this mare appeared ill after having been upon the meadow the day before in good health and spirits. Despite this she was taken to work, and an hour later she began to go lame. She had scarcely been unharnessed on this account when she fell several times, but each time was able to rise again unassisted. When Levens saw her she had become worse, and he describes her condition as follows.

She was lying upon her side, and was completely covered with sweat. She attempted to rise, but in vain, the hind quarters being completely paralysed. There was clearly recognisable emphysematous swelling in the region of the loins and croup, and the lightest pressure upon this caused the animal great pain. The tongue was cyanotic, and hung sideways from the mouth. The eyes were staring and the conjunctivæ were dark-red, almost blue. Some blood had flowed from the vagina, but the urine was clear.

The respiration was groaning, and 60 to 70 per minute; pulse 80 per minute, very weak, and occasionally intermittent; rectal temperature 105·8 F. The appetite was completely suppressed, water only being taken in small quantities.

Levens mentions the possible suspicion of azoturia in order to demonstrate its untenability. The loss of blood from the vagina, the cutaneous emphysema, the high temperature, and the cyanotic tint of the mouth and conjunctivæ were not symptoms of azoturia, but pointed to the existence of a severe infectious disease. This, Levens considered, must be quarter-ill, and he therefore diagnosed the case as such during life. Twelve hours later the mare was dead, one final symptom being a discharge of blood from both nostrils.

The diagnosis of quarter-ill was fully confirmed by an independent official investigation. The most marked post-mortem feature, besides general muscular anæmia, was the pronounced bloody infiltration of the subcutis, which, upon microscopical examination, was found to contain indisputable quarter-ill bacilli.

Quarter-ill is fairly common in Levens' district, especially in one particular portion of it, where, during the five weeks previous to writing the present report, he has encountered six cases. Four of these were in cattle and two in horses, and in each case the animal had either been pastured upon a particular infective strip of meadow land or been fed upon hay derived from it.—*Berl. Tier. Woch.*

(This case, though not so fully reported, is evidently very similar to the previous one described by the same author.—Transl.).

Hepatic Abcess opening into the Posterior Vena Cava.

Lhoste records (*Revue Vétérinaire*) the case of a Gascon ox which, for two years past, had shown vague symptoms of illness, the cause of which could not be diagnosed. The tuberculin test gave a negative result. The animal died very suddenly; and, as anthrax was suspected, a post-mortem examination was made with the following result.

The liver was considerably enlarged and degenerated. Its centre showed a voluminous, soft, fluctuating tumour which, when incised, gave exit to a litre (=about 1¾ pints) of pus. The wall of the abscess was constituted by Glisson's capsule, which was sclerosed. At the point where the purulent collection was in contact with the vena cava, the wall of the latter was extremely thinned and presented an ulceration, the evolution of which had caused the almost complete perforation of the vessel. When the interior of the vein was examined, it was possible to demonstrate that its walls were covered by a purulent layer having the same characters as the pus in the hepatic abscess. Finally, the right auricle and a portion of the right ventricle were filled by a purulent liquid, which was also found in the axillary vein.—(*Annales de Méd. Vét.*)

"Cold Abscesses" of Bones—Two Cases.

Cabayé records (*Revue Vétérinaire*) two noteworthy cases under this heading.

The first was in a spaniel, which showed a marked lameness of the right fore limb. Upon examination a diffuse, sensitive, warm tumefaction was found, and this being attributed to rheumatism, the animal was treated with sodium salicylate and external applications of tincture of iodine.

The treatment was without effect, and a month afterwards the animal was unable to bear weight upon the limb. Palpation revealed an osseous hypertrophy of the scapular fossæ, and pain, accompanied by a warm tumefaction, under the shoulder. A subscapular abscess was suspected, but a puncture with the trocar gave a negative result.

The animal was killed, and it was found post-mortem that the external aspect of the scapula showed a hypertrophying periosteitis, which filled the supraspinal and infraspinal fossæ. The subscapular fossa was uniformly covered with osteophytes, but here the hypertrophy was only apparent, for it was reduced to a simple osseous lamella bounding an anfractuous cavity filled with pus.

The second case was also of a dog, which received a violent contusion in the region of the left arm. All treatment was unsuccessful. The animal showed a tumefaction involving the left humerus and especially marked about the upper third of the bone. This dog, like the first, was destroyed and subjected to post-mortem examination.

This revealed the connective tissue thickened over the whole extent of the limb. The muscles of the arm were sclerosed, and their connective tissue covering formed the anterior wall of a vast abscess which was limited posteriorly by the humerus. When this abscess was incised it was found that the purulent collection communicated with the medullary canal of the humerus by two fistulæ. The bone itself was the seat of a hypertrophying periosteitis, the osseous productions of which were about four-fifths of an inch thick.

In both cases the author explains the genesis of the abscesses as follows: In consequence of a traumatism, a hæmatoma had formed between the bone and the muscles, and this had become transformed into an abscess as a result of an endogenous infection.—*Annales de Méd. Vét.*

OFFICERS TRAINING CORPS.

Dublin Royal Veterinary College Contingent.

Following the organisation of contingents of the Officers' Training Corps at the different Universities and Medical Schools, a contingent in connection with the Royal Veterinary College of Ireland was established during the past Session.

The first parade was taken by General Sir Neville Lyttelton, General Officer Commanding in Chief the Forces in Ireland, on May 4th, 1911, some sixty cadets being present.

During the summer term parade and other drills were held, and occasionally the contingent attended the Marlboro' Barracks for instruction in the Veterinary Hospital.

After the professional examinations were over the contingent proceeded to the Curragh Camp for a fortnight's training. The contingent brigaded with the College of Surgeons Officers Training Corps in Donnelly's Hollow, being under canvas all the time.

At the Curragh full advantage was taken of the Veterinary Hospitals, and lectures were also given upon the equipment of the veterinary hospitals in the field and the duties of the veterinary officer on the march and on active service. The Contingent also, by the kindness of the General Officer Commanding the 5th Division, on two days had mounted drill. The work during Camp was briefly as follows:

Reveille at 5 a.m.; parade for drill at 6 a.m.; breakfast 7.30 a.m.; camp inspection at 9 a.m.; parade at 9.30 a.m. and march to veterinary hospital; dinner at 1 p.m. Afternoon parades for drill, tent-pitching, etc. Lights out 10.15 p.m.

During the training the contingent was inspected by the Director-General of the Army Veterinary Service (General Pringle, C.B.); the Principal Veterinary Officer Irish Command (Lt.-Col. J. Moore), and also by Genl. Sir Neville Lyttelton, K.C.B., the General Commanding in Chief, the Forces in Ireland.

Although the contingent has been only recently formed it has created a good impression. The cadets have shown themselves very apt and keen in their work and present a good appearance on parade. The strength of the contingent it is expected will be greatly increased during the next session. The War Office has sanctioned the appointment of a Sergeant-Instructor from the Army Veterinary Corps, and it is intended that the contingent at present armed with swords will in addition receive revolvers. At present the strength of the contingent, which is officered by the staff of the College, is five officers and 50 cadets, including a staff sergeant, and four sergeants, all cadets. The officer commanding the contingent with the rank of Major is Prof. Mettam, the Principal of the College.

It should be mentioned that during the recent Royal visit to Dublin, the contingent assisted in lining the streets with the Dublin University and Royal College of Surgeons Contingents Officers Training Corps, and at the Royal Review the contingent was included with the above contingents and that from the Queen's University of Belfast, in the command of the Earl of Arran, K.P. The contingent was also represented at the Windsor Review.

It may be stated that the Officers Training Corps is open to all students, and entrance into the Corps carries no obligation to enter the Regular Army. The object is to provide material for the Reserve of Officers and give training which may be of service in case of need. In the Universities there may be contingents of (*a*) Infantry; (*b*) Artillery; (*c*) Cavalry; (*d*) Engineers; (*e*) Medical, in connection with the Royal Army Medical Corps. The Veterinary contingent, as furnished by the students of the Royal Veterinary College of Ireland, takes its lines from the Army Veterinary Corps. Its relationship to the A.V.C. being the same as the Medical contingents to the R.A.M.C.

In future, to create a spirit of emulation between the different sections of the contingent, an intersectional challenge cup, generously promised by Mr. Charles Allen, F.R.C.V.S., will be offered for competition, the details of which have yet to be settled.

EASTERN COUNTIES VETERINARY MEDICAL SOCIETY.

A meeting was held on Thursday, Sept. 7th, at the Royal Assembly Rooms, Great Yarmouth. The members and their wives were first entertained to luncheon as the guests of the President, Mr. T. G. Heatley, of Woodbridge. A group photograph was taken, after which the business meeting was held. Among those present were Messrs. W. Hunting, J. E. Kitchen, London; F. L. Gooch, Stamford; H. E. Wilkinson, Martham; J. R. Hewer, T. E. Auger, Wymondham; B. W. Bloomfield, Walton; W. Waters, Blofield; J. Barr, Acle; F. B. O. Taylor, Weston; H. P. Standley; R. B. Palmer, H. Buckingham, Norwich; W. Shipley, W. L. Little, Yarmouth; W. M. Reeman, Bury St. Edmunds; E. Margarson, Swaffham; S. Smith, senr., S. Smith, junr., Hon. Sec., Lowestoft; J. F. Thurston, Fressingfield; A. Holt, New Buckenham; J. K. Gooch, Holt; D. S. Jack, King's Lynn; J. R. Godbold, Stowmarket; E. H. Leach, Newmarket; E. W. Wright, Yoxford; M. Bray, Docking; and W. Turtill, Wickham Market.

Visitors: Messrs. F. Chambers, R. E. Leach, and H. Gooch.

Letters regretting inability to attend were received from Sir John M'Fadyean, Messrs. N. Almond, A. H. Santy, W. N. Jurgensen, T. E. Barcham, A. Burgon, W. E. Livock, F. Morton Wallis, J. Hammond, Senr., H. F. Downe, J. Bee, W. W. Kerr. E. A. Hudson, J. Cleveland, and W. Bower.

The minutes of the last meeting at Bury St. Edmunds were adopted, on the proposal of Mr. Sidney Smith, sen., seconded by Mr. A. Holl.

Mr. A. McTURK, Swaffham, nominated at the last meeting, was elected a member on the proposition of the President, seconded by the Hon. Sec.

The HON. SEC. said it was reprehensible that six of the members failed to reply on the postcards he sent out asking whether they would attend. It was the more to be regretted because the President had invited them to lunch. It would greatly facilitate matters, too, if members would reply earlier. Up to Monday he had not received more than half the replies.

KIRK APPEAL FUND.

The Editor of *The Veterinary News* wrote asking whether the members would contribute to the fund he is organising to assist Mr. W. Kirk in the appeal entered by the London County Council to compel veterinary surgeons to pay for the use of the College arms.

Mr. W. HUNTING, called upon by the President, said he rose in accordance with his request, but personally he was not an admirer of practitioner's use of the College arms. Although it was very commonly done, he did not think it showed very elevated taste to have one's letter paper decorated with a number of crests. But in a case where one of their members had been attacked and had the pluck to defend himself, he thought it would be rather mean to leave him to do so alone. He had already subscribed to the fund with the Central Veterinary Society. He hoped veterinary surgeons as individuals would support Mr. Woodruff in his object.

Mr. SHIPLEY said that as a matter of principle he thought it very bad form indeed to use the College arms though he realised that Mr. Kirk might be in a difficult position. If veterinary surgeons wanted to use crests of any kind in their business or for their private purposes they should have their own and pay for them. It was a matter in which personally he took very little interest.

Mr. H. BUCKINGHAM, as a veterinary surgeon who used the College crest, said he saw no reason why they should not use it. It distinguished them from the quacks. It had been used for many years, but independently of that, one of their fellow-practitioners having got into this fix, they ought one and all to help him. One member should not have to bear the whole brunt, and they could conscientiously give their mite towards it. He therefore advocated a contribution from the Society.

The PRESIDENT said he thought it was purely a question for the individual whether he thought this action right. He did not see how they could ask the Society to do anything, but they could give as individuals. If a man had a strong feeling on the subject he should subscribe.

Mr. BUCKINGHAM said he would test the feeling of the members by proposing that the Society contribute two guineas.

There being no seconder, this proposal fell to the ground, and no action was taken.

NATIONAL VETERINARY ASSOCIATION.

A letter was was read from Mr. A. Gofton (Edinburgh) as to the amendment of the rules of the National Association. The President said that at their last meeting they had approved the scheme, and he therefore proposed that their Society affiliate with the National.

Mr. T. E. AUGER seconded, and this was carried.

The HON. SEC. called attention to the list of instruments printed on the agenda papers for the information of members. The tooth clippers and forceps had been most in demand. Some of the instruments needed repair, and he asked for instructions.

Mr. W. SHIPLEY said this should be left to the Committee with power to order any repairs. He moved accordingly.

The PRESIDENT seconded, and this was carried.

Mr. SHIPLEY proposed that the annual meeting be held at Norwich.

Mr. SYDNEY SMITH, SEN., seconded, and this was carried.

MILK FEVER.

The PRESIDENT said he would like to mention as a point of interest to anyone working out the etiology of milk fever, that while in 1908, 1909, and 1910 during the months of June, July, and August he averaged 39 cases

of milk fever, this year he had only had one case. The past three summers were wet and this year dry, and he wondered if other members had had the same experience. It showed that hot weather was not a producing cause.

Mr. W. L. LITTLE said he thought it depended upon the quantity of grass.

The PRESIDENT, in reply to a question, said the herds would average 30 cows.

Mr. WRIGHT said he had had just as many cases, and he found the number to be the same in hot weather as in cold. He had some quite lately.

Mr. WILKINSON said he had a herd of 40 Jerseys, and during the past two years had cleared out all the tuberculous cows. This summer there had not been one case of milk fever. Previously it used to occur constantly. The cows were calving all the year round.

Mr. HOLL said he had three dairies of between 50 and 60 cows, and he used to have 15 or 16 cases each year, but this year there had been only one case in the three herds. There had been this year nothing like the milk fever in Norfolk that they used to have.

Mr. BLOOMSFIELD said that in his district there were a few cases in June and none since.

Mr. T. E. AUGER said his experience was the same as the President's and he had had very few cases indeed.

The PRESIDENT said there was certainly a weight of evidence that there was very little milk fever this summer, and the reason must be the great scarcity of grass feed.

POST-MORTEM SPECIMEN.

Mr. F. B. O. TAYLOR exhibited a calculus taken from a carriage horse. He got a wire to take a calculus from the urethra of a horse, and also to bring his gun. He found the calculus lodged in the perineal region, where it could easily be felt. He was asked to take it away immediately or shoot the horse. As the horse was 20 years old and had had paralysis of the neck of the bladder for 18 months and was practically useless for driving, he said the best thing was to shoot it. Prof. Hobday had taken one calculus out of its bladder, and the late Mr. Fred. Low had taken another from its urethra. The present calculus was just below the anus. There was a good deal of urethritis, so that if the horse had been operated upon it would not have been much good.

The PRESIDENT said the calculus was a very pretty specimen, and it was an interesting case. There must have been considerable dilatation of the urethra for it to have got into the perineal region.

THE OUTLINES OF VACCINE AND SERUM THERAPY AS APPLIED IN VETERINARY PRACTICE.

By A. L. SHEATHER, M.R.C.V.S., London.

Mr. President and Gentlemen,—When, in the early part of this year, I received an invitation from one of your members to read a paper before this Society upon vaccine and serum therapy, I must admit that the difficulties which the subject presented seemed almost insurmountable. It was not a case of finding sufficient to say but one of deciding what not to say. A few moments consideration convinced me that only the very sketchiest of outlines could be given if a comprehensive survey of the subject were to be attempted, and that debatable points and theories must be left severely alone.

I have therefore confined myself to a few considerations of a general nature regarding the various types of immunity, and to a brief description of some of the measures adopted in the production of it, making such choice as may illustrate as many as possible of the various principles involved.

In nature such a thing as absolute immunity is quite exceptional. By absolute immunity is meant such a degree of resistance that an animal cannot be infected with a particular disease under any circumstances whatever. When, therefore, one speaks of an animal being immune to a particular disease one generally means that it is capable of resisting any infection that it may meet under natural conditions. Immunity is therefore relative only in the great majority of cases. There are numerous examples of animals that one would speak of as being immune, but which can be infected experimentally. Such a case is the horse, which though never naturally attacked with swine erysipelas may be experimentally infected.

Classifying immunity upon the broadest basis possible, one may divide it into two great types—natural and acquired.

Natural immunity I have just referred to. It may be defined as an inherent insusceptibility on the part of an animal to a particular disease under natural circumstances. Since neither sera nor vaccines play any part in its production we may dismiss it.

Acquired immunity. This immunity is not all of one kind, and further sub-division is necessary. (I.) First there is such a thing as acquired natural immunity, by which I mean an insusceptibility on the part of an animal towards a particular disease which is possessed by that animal for a part of its life only, the immunity being acquired without the necessity either of the animal passing successfully through a natural attack, or of its being treated in any way by man. As such an immunity I may instance the case of black-quarter in bovines. It is well known that this disease is very fatal to young stock, but that cases are fewer among animals of 1½-2 years of age, and that they are distinctly rare in animals over three years of age. No definite explanation can be given to account for this immunity, though more than one theory has been advanced.

II. The second type of acquired immunity is that which an animal possesses by virtue of its having passed through a natural attack of the disease in question. Examples of this are numerous. There is one example of immunity acquired in a manner that is a modification of this which is perhaps worthy of mention. I refer to the immunity that is in some cases produced in young animals owing to the mother passing through an attack of the disease while pregnant. Such a case is that of Malta fever. The goat is particularly susceptible to Malta fever, but it has been found that the progeny of infected females possess a high degree of immunity, although they have never actually had the disease.

(III.) The third type of acquired immunity is that which results from man's intervention. Here again the immunity is not all of one kind.

Two separate and distinct types of immunity may be conferred upon animals by man. Special names have been given to these types. They are known as active and passive immunity. Generally speaking, active immunity is that which is produced by vaccines, or in some cases vaccines associated with protective sera, and passive immunity results from the use of sera alone. The main idea of vaccination is to imitate nature in producing immunity by causing the animal to pass through an attack of the disease in question, but to modify nature's methods in such ways that a greater degree of safety may be obtained without sacrificing the strength of the immunity.

The special features of active immunity are as follows. The essence of the immunity is that it results from a reaction on the part of the animal's own tissues, the immunity being, broadly speaking, proportional to the reaction. In other words, the animal prepares its own protective substances, whatever they may be. The second characteristic is a natural corollary to this, and it is that some time must always elapse before the

immunity reaches its maximum. That is to say, no animal is ever immune immediately after a vaccine has been administered. Thirdly, the immunity, once established, is lasting. In some cases the immunity may last for years. In others it is a matter of months. Finally, although in devising methods of vaccination every effort is made to secure safety without sacrificing effectiveness, there must, in the nature of things, always be some risk to the animal vaccinated.

Although I intend to deal with active immunity before passing on to passive immunity, I think it well to give here for the sake of contrast the principal features that characterise passive immunity. As I have already mentioned, passive immunity is set up by the use of protective sera, and herein lies the explanation of the principal features exhibited by such immunity.

First, the immunity resulting from the use of a protective serum is set up without any reaction on the part of the tissues of the animal protected. The protective materials are actually present in the dose of serum administered, the animal being simply a passive receiver.

The second feature is that, as one would naturally expect, immunity is conferred at once. That is to say, from the moment the animal receives the dose of serum it is protected.

Thirdly, the immunity established is comparatively fleeting. It commences to decline from the outset and has generally entirely disappeared within a few weeks, and in some instances ceases even to be serviceable after a matter of days.

The fourth characteristic is that the production of passive immunity in an animal is without danger. This statement, in view of more recent work, is perhaps a little too positive. I will indicate later circumstances under which danger may arise.

Active Immunity.

I will now deal briefly with the methods adopted in the production of active immunity. As I have already stated, in the production of active immunity an attempt is made to imitate nature while lessening its risks. For this reason various modifications of the natural virus have been resorted to in the preparation of the vaccines. The following are the principal modifications of the natural virus that are resorted to in the preparation of vaccines :

1. The fully virulent virus administered in minimal doses.
2. The administration of the virus deprived of some of its virulence.
3. The administration of dead virus.
4. The administration of bacterial products.
5. The administration of either fully virulent or attenuated virus associated with a protective serum.

The administration of fully virulent virus in minimal doses.

An example of this method of vaccinating is that devised by the late Prof. Arloing in conjunction with Cornevin for the protection of animals against blackquarter or quarter-ill.

The method of preparation of the vaccines, for there are two, known as 1st and 2nd, is as follows : A sheep is killed experimentally with blackquarter. Immediately after its death the muscular lesion is exposed, all precautions being taken to prevent accidental contamination and the affected muscles are cut out. These are then cut into strips about three inches long and one wide, and dried at a temperature below that of the body until they become quite brittle and can be broken in the fingers. In this condition the muscle may be kept for an almost indefinite period.

The pieces of muscle are then ground up in a sterile mill and reduced to powder. This powder is mixed with sterile water until it has the consistency of a stiff paste. The paste so prepared is spread out in layers about $\frac{1}{2}$ inch thick upon glass plates which are then heated. The temperature to which the plates are raised depends upon whether one is preparing the 1st or weaker vaccine, or the 2nd.

For the first vaccine the temperature must not be allowed to fall below 100° C., and for the 2nd vaccine it must not fall below 90° C. In both cases the paste is submitted to this temperature for seven hours. At the end of this time the paste is found to have been converted into a hard cake or crust. This cake is again reduced to a powder by grinding in a mill. The resulting powder is the vaccine.

It was at one time supposed that this method of vaccination involved the use of a virus which had been deprived of part of its virulence, that is to say, an attenuated virus. This, however, is known now to be an incorrect view. The bacillus of blackquarter is a sporulating organism, that is, it is capable of modifying itself so as to be able to resist unfavourable circumstances while maintaining its vitality. No evidence has been adduced to show that spores can be deprived of their virulence.

During the preliminary drying of the muscular tissue any of the organisms in the vegetable or non-resistant condition either become spores or are killed, so that when drying is complete only spores remain. In the preparation of the 1st vaccine the period of heating for seven hours at 100 to 104° C. suffices to kill off a proportion of the spores. Similarly in the case of the 2nd vaccine a proportion of the spores are killed, but as the temperature is lower a greater number survive. The first vaccine is preparatory, and the second is the principal protecting agent.

Method of application of the Vaccine.

The dose for a young bovine animal is 1 centigramme of the muscle powder both of the first and second vaccines. When required for use the muscle powder is mixed with a suitable quantity of sterile water and injected under the skin. The injection must be made at some place where there is only a small amount of loose subcutaneous tissue, and the under surface of the tail about six inches from the tip is the place recommended.

After an interval of 8 to 10 days the 2nd vaccine is introduced in a similar way just above or below the spot where there the first vaccine was introduced. Immunity reaches its maximum about a fortnight after the injection of the 2nd vaccine, and from that time very slowly declines. It is said that a serviceable immunity persists for about 9 months to a year.

Risks of the Method.

As I have already said, the production of active immunity always involves a risk to the animal vaccinated, and this method of vaccination is no exception to the rule.

It cannot be denied that there is a risk attaching to this method of vaccination—a risk that it may actually set up the disease in the animal vaccinated. Taking the percentage of accidents of this sort over a very large number of animals, it is found to be very low, about 1%. But unfortunately, for some undiscovered reason, these accidents are not evenly distributed. A number of animals may die at one place and none elsewhere. There is no doubt that a very valuable degree of immunity is conferred by the use of the method.

Other plans have been adopted in the preparation of vaccines against this disease, but of these I do not propose to speak.

The Administration of Bacteria deprived of part of their virulence.

There are various ways of varying the virulence of pathogenic bacteria, the variation being either in the

direction of an increase or a decrease. The processes whereby the virulence of an organism may be increased need not concern us, as such organisms would hardly be suitable as vaccine materials.

With regard to reducing the virulence, or attenuating, as it is called, a variety of plans may be adopted. Generally speaking an organism loses some, and eventually, in certain cases, all its virulence if it be submitted to an unfavourable influence of some sort. For example, the bacillus of fowl cholera may be attenuated by cultivation for long periods on artificial media without renewal. It is interesting to note that it was against fowl cholera that Pasteur made his first vaccine. He found that cultures of the bacillus kept in the laboratory gradually lost their virulence unless the growth was transplanted to fresh tubes pretty frequently. This fact suggested to him the possibility of protecting poultry against the disease by using such weakened virus. This proved to be the case. The method was never extensively used in practice, on the score of expense, but it was a successful method, and consequently of great historical interest.

In the second place the virulence of organisms may be reduced by cultivating them upon artificial media under unsuitable conditions of temperature. To this I shall return later.

Thirdly, attenuation may be produced in some instances by what is known as "passage." That is to say a series of animals other than those naturally attacked are inoculated one from the other. It often happens that in this way the virulence of the organism is increased for the animals comprising the series, but decreased for the species naturally attacked.

A vaccine of this kind was prepared by Pasteur against swine erysipelas. It was never extensively practised owing to its uncertainty, but he showed that if a series of rabbits were inoculated one from the other with the bacillus of swine erysipelas the virulence of the organism was increased for the rabbit but decreased for the pig.

A fourth plan that may be adopted to attenuate an organism is to grow it upon an unsuitable medium or a medium to which an antiseptic has been added. This plan has not been widely adopted, and need not concern us.

As an example for a vaccine prepared from an attenuated virus, I propose to describe that devised for the protection of animals against anthrax. In this instance attenuation is achieved by growing the bacillus at a temperature other than the optimum. Here, again, it was Pasteur who originated the method.

The bacillus of anthrax is one which under certain definite conditions is capable of forming spores. Not the least important of these conditions is the temperature. Pasteur found that while growth still takes place there is no sporulation above a temperature of 42 centigrade. He also found that the bacillus when grown at this temperature gradually undergoes attenuation, and finally after about a month dies, virulence disappearing entirely before growth ceases.

It is a remarkable fact that the attenuation so produced is impressed practically indelibly upon the bacillus. That is to say, supposing subcultures be made even under the most favourable circumstances, using as seed material a growth that has been incubated for a fortnight at 42·5 C., these subcultures, and all succeeding generations, preserve the same degree of attenuation as the original one. This forms the basis of Pasteur's anti-anthrax vaccination.

As in the case of the Lyons method of vaccination against black-quarter two vaccines are used. Both vaccines are broth cultures of the bacillus of anthrax. The first vaccine is a culture which is so far deprived of its virulence that in minute doses it is incapable of killing guinea-pigs, whereas it will kill mice. It is understood that it is not necessary to make each vaccine by cultivating the bacillus in broth at 42·5C. Once the degree of attenuation has been obtained the subcultures may be incubated at the optimum temperature without any restoration of virulence. Pasteur found that the necessary degree of attenuation was reached when the broth cultures had been incubated at 42·5 for about three weeks. Subcultures made from such primary cultures constitute the first vaccine.

The second vaccine is prepared in a precisely similar way, save that the original culture is incubated for 10-12 days only. By this time the virulence has become altered so that a minute dose will kill a guinea-pig, but will either not affect a rabbit or make it ill only without killing it.

The dose of each vaccine is $\frac{1}{4}$ cc. for an ox, and $\frac{1}{2}$ cc. for a sheep. Vaccination may be practised anywhere, the dose being introduced subcutaneously. The side of the neck, or just behind the shoulder are suitable places. Between the two doses an interval of 8-10 days must elapse.

In all cases where two vaccines are used—a first which confers but little immunity, and a second or immunising one—there must be an interval between the two administrations, because after the first dose the resistance of the animal to the particular disease is decreased, and it is in a condition of increased susceptibility. The introduction of the second dose too soon after the first might easily lead to a fatal infection. This period of decreased resistance is what is known as the negative phase of vaccination. What has been said with regard to the value of the black-quarter vaccination applies practically word for word to Pasteur's anthrax vaccine.

This method of vaccination has not been used extensively in practice in this country because in any outbreak of anthrax it is exceptional for more than one or two animals to die, and it would be in the highest degree unwise to apply the method under these circumstances, since it increases the chance of infecting the place should an animal succumb to it.

A third modification of virus that has been used as a vaccine is one that has been killed outright. This plan has not been extensively practised in veterinary medicine, although a few experiments have been made in connection with some of the suppurative diseases. I do not, therefore, propose to say anything regarding this method.

The fourth method of producing an active immunity is the introduction of bacterial products alone. This method is that applied principally in the production of anti-toxic as apart from anti-bacterial protective sera, and I shall return to it later.

There is one more method of conferring active immunity which has been practised extensively with various modifications in different parts of the world. This method is the combination of either the virulent or attenuated virus with a protective serum. Such methods are known as mixed methods. As an example of the use of the fully virulent virus associated with a protective serum may be mentioned the plan adopted in the preliminary immunisation of animals destined to supply anti-rinderpest serum. The method has been variously modified, but in the main it consists in giving a dose of fully virulent rinderpest blood and a suitable dose of protective serum.

The main disadvantage of mixed methods of protection is the difficulty of striking the right proportion between the vaccine and the serum. Should the dose of serum be too large, or the vaccine be administered too soon after the serum, the immunity set up by the serum is likely to be sufficiently strong to render the vaccine ineffectual, and consequently there will be no production

of immunity. On the other hand, if the dose be too small, there is a possibility of the vaccine setting up a fatal attack.

Passive Immunity.

As I have already mentioned, passive immunity is characterised by the following features. It is set up in an animal without there being any reaction on the part of the tissues of the animal receiving the serum. Secondly, it is acquired immediately, and thus in certain cases such immunity is valuable in arresting an outbreak of disease. It is of short duration. It involves no risk to the animal immunised save in one respect which I will mention briefly.

Protective sera are, broadly speaking, of two kinds, anti-bacterial and anti-toxic. In certain bacterial diseases it is not actually known how the bacteria produce their effects. In these cases no toxin can be demonstrated. One therefore calls the protective sera in these cases anti-bacterial. In other diseases, *e.g.* tetanus, the symptoms are known to be due to a specific toxin elaborated by the bacillus of tetanus. In such a case the protective serum is termed an anti-toxic serum.

Anti-anthrax serum is an example of an anti-bacterial serum, and is prepared as follows. The first step is to confer active immunity against anthrax upon the animal that is destined to provide the serum. This may be done as already described, using the Pasteur vaccines. When active immunity is fully established the animal is given—generally by subcutaneous inoculation—gradually increasing doses of fully virulent anthrax cultures, until it can stand enormous doses. The animal is then rested for a time, generally a fortnight or three weeks, to enable it to destroy the organisms inoculated into it. The active immunity of the serum producer has now become hyper-immunity, and its serum, which immediately after the original vaccination possessed no protective or curative powers, now possesses these to a high degree. The activity of an anti-anthrax serum can never be taken for granted. It has always to be tested experimentally to ascertain its value. I will not trouble you with the technique of this testing.

When the serum is shown to be efficient a quantity of blood is drawn from the animal, generally from the jugular, with all precautions to ensure sterility. The blood is allowed to coagulate and express its serum, which is then drawn off, and after the addition of a suitable antiseptic to prevent subsequent contamination, is dispensed as required.

Value of Anti-Anthrax Serum.

A good serum should confer passive immunity on an ox in doses of 10 c.c. In this country there is not much demand for an anti-anthrax serum because the average number of deaths per outbreak is less than two. It has also very great curative powers, and provided an animal be not in the last stages and a large supply of serum be at hand a cure may often be effected.

In cases where the source of infection is persistent anti-anthrax serum is of little or no value, as it would be necessary to repeat the dose every ten days or so, and the expense would prohibit this.

Anti-toxin Sera.

The anti-toxic serum in most common use in veterinary practice is anti-tetanic serum.

Whereas no toxin can be demonstrated in broth cultures of the anthrax bacillus that have been freed from all organisms of filtration, filtered cultures of the tetanus bacillus can be shown to be highly toxic.

The method of preparing anti-tetanic serum resembles that of anti-anthrax serum save that filtered cultures of the bacillus are used instead of unfiltered ones. To commence with the dose is very small, but it is gradually increased until the serum produced will stand enormous doses of highly virulent material. A good serum will confer passive immunity in doses of 10 c.c. The immunity rapidly declines, and after about three weeks has entirely disappeared.

Contrary to what is found in the case of anti-anthrax serum, anti-tetanic serum is of no value when once symptoms have made their appearance.

The anti-toxic power of this serum can be measured quantitatively against known quantities of toxic material.

A brief explanation of the action of anti-tetanic toxin may not be out of place. The explanation is that put forward by the celebrated German scientist Erlich.

In Ehrlich's view the toxin produced by the tetanus bacillus has a special affinity for certain groups of elements contained in the protein molecules of the nerve cells. By union of the toxin with these groups the physiology of the nerve cells is upset and symptoms are produced. In the animal which is to provide the serum the administration of gradually increasing doses of toxin stimulates the nerve cells, or in some way acts upon them to produce a large number of these particular groups in excess of the normal. These groups, according to Erlich, become separated from the parent cell and are passed into the circulation.

It is upon these groups in the proteetive serum that the immunising power of that serum depends. The injection of a dose of serum into an animal infected with the tetanus bacillus thus introduces into its body these groups, or receptors, as they are called. When the toxin produced by the bacilli meets these receptors union at once takes place, and thus the toxin is prevented from acting upon the nerve cells.

This view of the action of anti-toxic sera also explains why the use of anti-tetanic serum is of no avail after symptoms have appeared, for a necessary precursor of symptoms is that the toxin shall have united with the receptors of the nerve cells, and once thus united the toxin produces its effects, and the receptors in the antitoxic serum cannot again detach it.

I have said that no risk is run by an animal through the injection into it of a protective serum save one. What that one risk is I can indicate but in the briefest manner possible. This risk is the production of the condition known as anaphylaxia, or serum disease. This subject is engrossing the attention of investigators in many laboratories in Europe at the present time, and a wealth of experimental facts and details is being gradually accumulated regarding it. It may be considered quite apart from anti-toxic or anti-bacterial sera, since the condition may be set up equally well by normal and by what I may call specific sera.

Essentially anaphylaxia is the condition which is sometimes produced in an animal by a dose of serum derived from an animal of another species followed after a certain interval by a second dose of the same serum.

The symptoms of this condition are striking. In small laboratory animals the second dose of a heterologous serum may be followed by almost instant death, or there may be cramp-like convulsions followed by death within a few minutes. Accidents of this sort have been observed in Belgium and Holland where cattle have received successive doses of anti-anthrax serum derived from horses. No symptoms are produced unless a certain time, which in some experimental cases amounts only to days, has elapsed between the two doses. But once that period has elapsed accidents may occur when months pass before the second dose is given.

These effects are not produced by homologous sera, that is to say when the serum injected is derived from the same species as the animal receiving the injection.

This brings me to the end of what I have called the "Outlines of vaccine and serum therapy as applied in veterinary practice." I am only too conscious of the sketchiness of the outlines, and of the many omissions,

but, as I said at the commencement of my paper, more than this would not be possible without taxing your patience and even your endurance.

The PRESIDENT said they were all very much obliged to Mr. Sheather for his paper, and it was a matter of regret to him that he did not understand more of this important subject.

Mr. SHIPLEY said that their members were under obligation to Mr. Sheather for coming to Yarmouth and giving them such an able paper. So far as he could understand and appreciate the paper it was quite impossible that they should discuss it, but it had been a great educational treat. He begged to propose a hearty vote of thanks to Mr. Sheather for the time and trouble he had given to this paper. It would be of service to all older practitioners in the country who had not the advantage of hearing lectures in bacteriology which the younger members of the profession enjoyed. Personally he was much obliged to Mr. Sheather for the good response he made to his request for a paper.

Mr. H. P. STANDLEY seconding the vote, said he also desired to congratulate Mr. Sheather on the very excellent paper he had given, which everyone of them must regard as a treat. It was not a matter they could discuss because very few of them knew much about the subject, although it was an important one. To those who had no opportunity of attending post-graduate courses, the whole of what Mr. Sheather had explained was perfectly new, though he had probably touched only the fringe of the subject. He would like to hear a good deal more, and he hoped that Mr. Sheather would be able to come down again and go into the matter further.

The HON. SEC., supporting the vote of thanks, said he would like to associate himself with Mr. Shipley's remarks because he knew Mr. Sheather had been very busy. It was therefore exceedingly kind of him to hold to his promise. He had given them a most interesting paper which must have occupied a good deal of his leisure, when in the summer weather he would far rather have been outside.

Mr. E. WRIGHT said a good deal had been heard of this anti-toxin and anti-tetanic serum. A few years ago a man was shot not far from his stables, and was under his supervision for several days. He tried to keep people from visiting the man in order that he might be quiet, and used to see him himself morning, noon, and night. One morning he noticed he was suffering from tetanus, and immediately informed the doctor, who came at once and injected anti-tetanic serum into his buttocks. In about twenty-four hours the man could use his jaws and began to articulate. The doctor injected the serum a second time, and the man was very much better, but on the third day convulsions or blood poisoning set in and carried him off. He thought at the time great credit was due to the doctor. Had the man been kept quiet he believed that he would have been alive still. This occurred about twelve years ago.

Mr. BLOOMFIELD said that as one who seldom attended the meetings he wished to say how much he appreciated the paper. It was on a subject that was coming to the front more and more. Whenever any one like Mr. Sheather came amongst them every member would be glad to be present.

Mr. F. L. GOOCH said he understood Mr. Sheather to say the period of immunisation after the injection of anti-tetanic toxin was three weeks. He believed it was sent down from the Pasteur Institute to give six weeks immunity with a 10 c.c. dose. He thought there was a future for anti-tetanic toxin as a preventive measure. It might be preventive or curative, but he considered it was impossible to cure when the nerve cells became infected. He knew a stable that had been infected with tetanus for years. If any horse suffering from a wound was put into this stable it had always been subject to tetanus. During the past month he had to treat an animal there, and it was the first treated successfully for four years, and at the present time was free from tetanus.

The vote of thanks was passed amid applause.

Mr. SHEATHER, in reply, said he owed the members a debt of thanks for listening to him. His object was to try to put before them a general survey of the subject. He thanked them for inviting him, and for giving him such kind attention. With regard to Mr. Smith's remarks, he did not want to make out that his paper had cost him any greater effort, but he wrote it because he understood from his friend Prof. Woodruff that the papers read before the Society were handed over for publication. Otherwise he would have spoken extempore. With regard to Mr. Gooch's statement about immunity, the various sera varied in strength dependent upon the length of treatment the immunising animal underwent while under preparation for serum. If the Pasteur Institute could prepare serum that would confer immunity for six weeks he congratulated them. As he had been in the laboratory since he qualified, he had not had much opportunity of seeing anti-tetanic serum used. He had heard it stated in practice that where there was a wound likely to be a long time healing, the dose should be repeated in a fortnight. He could only look upon cases from the laboratory point of view, which was entirely different from what they met in practice.

Mr. W. L. LITTLE proposed a vote of thanks to the President for the able manner in which he had occupied the chair. He had also given them an excellent repast and treated them in every way extremely well. They had never had a President who carried out the duties in a more satisfactory manner.

Mr. H. BUCKINGHAM seconded, and the motion was carried unanimously.

The PRESIDENT said he was obliged to Mr. Little for his very kind remarks. He felt very proud to have occupied the chair when Mr. Sheather gave them this paper, because it did them good now and again to be reminded that they did not know quite so much as they thought. He thanked them all for attending.

The meeting then ended.

SYDNEY SMITH, JUN., *Hon. Sec.*

NORTH WALES VETERINARY SOCIETY.

The annual meeting was held at "The Sportsman" Hotel, Carnarvon, on Tuesday, Sept. 12th, at 2 p.m The following members were present; Messrs. R. S. Rowlands, President; R. Jones, Treasurer; Griffiths Evans, M.D.; L. W. Wynn Lloyd, Hon. Sec. Visitors: Messrs. J. O. Howard Rees, and W. Jones Parry.

Apologies for inability to attend were received from Messrs. J. H. Wynne, C. W. Cartwright, and Trevor Williams.

A communication was read from Mr. G. Jones Roberts tendering his resignation.

The HON. SEC. proposed that he be asked to re-consider his decision. Mr. Roberts had been a valuable member of the Society, and was an asset they could ill afford to lose.

Dr. EVANS seconded the proposition, which was carried unanimously.

THE LATE PROF. WILLIAMS.

The HON. TREASURER said this Society in common with many others, suffered a great loss by the lamented death of Prof. Williams, and he proposed a vote of condolence with the family, and that the Hon. Sec. send a letter to Mrs. Williams to express the Society's regret.

The HON. SEC. seconded. Many of us had in him a dear friend, but the whole profession and this Society in particular, lost a valuable member by the death of

Prof. Williams. Carried in silence, the members standing.

The PRESIDENT stated that he and the Hon. Sec. attended the funeral and purchased a wreath in the name of the Society. The members approved.

A letter was read from Prof. Woodruff, as Secretary of the fund which is being raised to defend the action of the L.C.C. against Mr. Kirk, asking the Society for support.

Dr. EVANS said he was not entirely in sympathy with this matter. He regarded the display of the College crest on note headings and labels as vulgar.

The HON. SEC. agreed to an extent, but pointed out that this was to be regarded as a test case, and whether we used the crest or not we should fight for the right to use it.

The HON. TREASURER proposed, and the President seconded, that a sum of three guineas be subscribed to this fund. Carried.

A letter was read from Mr. Trevor Williams suggesting that the Society purchase tooth shears for the use of members.

It was decided to defer the matter until the next meeting, the Hon. Sec., in the meantime, to ascertain the price of the instrument.

Dr. EVANS asked why subscribers to the entertainment fund of the National received no intimation of the meeting.

The HON. SEC. thought this was a real grievance which should be obviated in future. He had mentioned the matter at a meeting of the Provisional Committee, and was told by an officer of the National that the North Wales members would be written to and asked to become members of the National.

The HON. TREASURER said that only members of the National received notification of the meetings. The officers of the Association would assume that non-members would see the notices in the veterinary press.

The HON. TREASURER read the balance sheet and also the one relating to the entertainment fund. He asked what should be done with the surplus in hand, and suggested that the bulk of it go to the International Veterinary Conference fund. It was decided to consult the subscribers.

ELECTION OF OFFICERS.

The HON. SEC. proposed that in the event of Mr. Jones Roberts reconsidering and withdrawing his resignation, he be elected President. The retiring President seconded. Carried.

Vice-President.—Mr. TREVOR WILLIAMS was proposed by the Hon. Sec., seconded by the Hon. Treasurer, and carried.

Hon. Treas.—Mr. R. JONES was unanimously re-elected.

Hon. Sec.—Mr. L. W. WYNN LLOYD was unanimously re-elected.

Owing to the small attendance it was decided that the President's paper be held over.

L. W. WYNN LLOYD, Hon. Sec.

VETERINARY MEDICAL ASSOCIATION OF IRELAND.

A general meeting was held at the Gresham Hotel, Dublin, on Tuesday night, August 22nd, when the President, Prof. A. E. Mettam, occupied the chair, and the attendance included: Messrs. W. H. Wilkinson, E. A. Ryan, J. J. Vahey, John J. Small, Jas. Dodd, J. Fox, Chas. Allen, Jas. McKenny, P. D. Reavy, M. Barlow, A. C. Duncan, W. Cargill Patrick, J. Ewing Johnstone, Prof. J. Craig, E. C. Winter, John F. Healy, P. J. Howard, J. W. Peatt, R. H. Lambert, L. M. Magee, J. B. Dunlop, F. C. Mason, T. B. Mulcahy, Chris. Rea, and A. Watson, Hon. Sec.

Visitors: Profs. Jas. McCall, John R. McCall, W. Owen Williams; Messrs. H. Phelan, F. S. Ringwood, J. S. McCann, E. Proctor.

Mr. CARGILL PATRICK proposed that the minutes of the last meeting of the Association which had been printed and circulated, should be taken as read and adopted. Mr. Winter seconded the motion, which was carried.

Letters of apology for absence were received from Messrs. G. Newsom, W. Chambers, W. B. Prendergast, J. A. Jordan, Lieut.-Col. Chas. Steel, J. V. Daly, and A. J. Moffett.

The PRESIDENT said that there was one election to be proposed—that of Mr. J. B. HARE, M.R.C.V.S., Navan, who had been proposed by Mr. Magee, and seconded by Mr. McKenny. Elected unanimously.

PRESIDENT CONGRATULATED.

Mr. MCKENNY said that since their last meeting a great honour had been conferred upon their President. (Applause). He had been elected President of the Royal College of Veterinary Surgeons. He therefore offered him their hearty congratulations. (Applause.)

Mr. CHAS. ALLEN seconded, and the proposition was carried.

The PRESIDENT said he desired to thank them very much indeed for their kind congratulations. He did not expect to be elected to the honourable position which he had been chosen to occupy, and when he was proposed and elected, he came to the conclusion that they were honouring the profession in Ireland at the same time they were honouring him. He told his colleagues on the Council that he thought it would be viewed in Ireland as a compliment to the profession in Ireland and he hoped they would accept his thanks on behalf of Ireland. He hoped that during his term of office the business of the College would not suffer in his hands. He hoped to do something towards steering the ship through the stormy seas and cross currents which were besetting it. At the conclusion of his term of office he trusted to hand over the prestige of the College to his successor undeteriorated. He was sure he would have the support of his professional brethren in Ireland, because hitherto while he had resided in Ireland he had never received anything but the greatest consideration, courtesy, and goodfellowship from every member of the profession. He concluded by again thanking them for the honour they had done him. (Applause).

ROARING AND WHISTLING.

By Prof. J. F. CRAIG.

Mr. President and Gentlemen,—When I volunteered to write a paper on roaring and whistling for this meeting I expressed a wish that some of the members would send me specimens of the larynx, trachea, and lungs of horses which made an abnormal respiratory sound during life. So far I have received none, but I hope you won't forget me in future when you come across such cases.

My object in bringing this paper before you and in desiring you to send specimens is to find out whether we are all in agreement as to what roaring and whistling really mean, and what is the pathology of the condition. If we are going to operate on the larynx, we must, in order that we may have a fair prospect of success, first make sure that some defect or disease of the larynx exists.

1. *What is roaring or whistling?*

I define roaring or whistling as a chronic condition in which an abnormal laryngeal sound is produced during forced inspiration. That definition indicates that roaring and whistling are only symptoms of a disease. If the sound is produced during expiration only, or

during expiration to the same extent as inspiration, I take it that the condition is not roaring or whistling. The difference between roaring and whistling lies in the pitch of the sound produced. In roaring the pitch of the sound is low, in whistling it is high.

2. *What are the symptoms associated with roaring and whistling?*

Attention has been drawn from time to time to the conformation, sex, and breed of horses most frequently affected with the disease. Roaring is most commonly noted in thoroughbreds and the breed of horses which are close blood relations of the thoroughbred, and it is seldom seen in cobs and ponies. It has been said that horses and geldings are more frequently affected than mares, but the evidence is not convincing. Native Arabs are seldom roarers or whistlers. Warm dry climates are also opposed to the frequent production of roaring. This condition is considered to be associated with long, fine neck, heads badly set on, and a narrow intermaxillary space. But roaring and whistling will be found in all types of horses.

Unless the horse is badly affected no abnormal sound is made during rest; it is only after a varying amount of exercise that inspiratory sounds are produced at the larynx. The amount of exercise necessary to bring out the sound depends on the condition of the horse and other circumstances. It must be carried out until the animal shows slight respiratory distress. The lighter breeds of horses must be galloped, preferably in a circle, either in the saddle or in the case of unbroken colts lounged with the long rein. Heavy horses may be lounged, or harnessed to a heavy load and driven up hill. The sounds will be heard particularly at the turning or when the horse is pulled up suddenly. The noise disappears very quickly when the animal is allowed to stand. A second trial after a horse is rested a little brings out the abnormal sounds more clearly. The cough of a roarer is often described as being deep, hollow, and prolonged.

A roarer and whistler often grunts when placed against a wall and threatened with a stick. This occurs particularly with nervous horses. The grunt is usually prolonged, and is louder if the horse's head is pulled towards the chest, and especially towards the rightside. But every roarer and whistler will not grunt when feinted with a stick, and some grunters have no affection of the wind. It has sometimes, occurred, however, that a horse which grunted afterwards became affected with roaring or whistling. Nevertheless, there is only one true test of this condition, and that consists in exercising the horse till slight respiratory distress is produced.

Fleming writes: "Direct manual examination of the larynx itself is valuable in ascertaining the condition of that organ, especially if the muscular wasting on the left side is at all considerable, and with practice the expert has generally little difficulty in pronouncing as to the existence of this wasting. When the horse's head is somewhat extended the larynx is more exposed, and the index finger can then readily feel its superior surface, which is formed by the wide expansion of the cricoid cartilage and the dilator muscles covering it. If the left muscle is wasted this surface will be found much flatter on that than on the right side." In my opinion the position of the posterior crico-arytenoid muscle is too deep to permit of a comparison between the two muscles. Again, the laryngoscope, or examination of the interior of the larynx by the hand are not practicable in the horse because of the length of the buccal cavity and soft palate.

It has been suggested that in order to be quite certain that any case of roaring is due to paralysis of the muscles of the larynx, the latter should be opened through the crico-thyroid membrane, to note the condition of the vocal chords and arytenoid cartilages. On the side affected these organs do not move, or move only to a slight extent during respiration. This is hardly a commendable plan for the formation of a correct diagnosis. Auscultation over the larynx might be of some service in ascertaining the origin of the sound.

3. *What is the cause of the sound in roaring or whistling?*

The sound is produced by the vibration of the vocal cord, most commonly the left one. This is brought about by the inaction of the posterior crico-arytenoid muscle during inspiration. Some of the inspired air enters and fills the ventricle of the larynx, pushes the vocal cord further inwards as a projecting band in the course of the air current, which makes it to vibrate. No doubt the arytenoid cartilage will also project into the tube to a slight extent and perhaps assist in the production of the sound.

4. *What is the pathology of the condition?*

The larynx of a roarer or whistler presents certain changes in the intrinsic muscles. The intrinsic muscles of the left side with the exception of the left crico-thyroid are paralysed and atrophied, yellowish in colour, and fatty. Seldom are the muscles of the right side affected, and when they are it is usually only in company with those of the left side. The muscles involved on the left side are:

(*a*) *Posterior crico-arytenoid*, which swings the arytenoid cartilage outwards, carries with it the vocal cord, and so opens the glottis.

(*b*) *Lateral crico-arytenoid*, which swings the arytenoid cartilage inwards, carrying with it the vocal cord, and so closes the glottis.

(*c*) *Arytenoideus*, which approximates the arytenoid cartilages and so assists the lateral crico-arytenoid in closing the glottis.

(*d*) *Thyro-arytenoid*, which draws the arytenoid cartilages downwards towards the thyroid cartilage and so slackens the vocal cord. During expiration the glottis decreases in size by the action of the lateral crico-arytenoid; during inspiration it increases in size by the action of the posterior crico-arytenoid. It is noted in specimens of the larynx from roarers that the left posterior crico-arytenoid is atrophied to a much greater extent than the other muscles, and in artificial section of the inferior laryngeal nerve the same point is also observed.

5. *How is this paralysis of these intrinsic muscles of the left side brought about?*

Atrophy and degeneration of muscles may be brought about by (1) a decreased blood supply, (2) by inaction. There is no evidence of a decreased blood supply in this connection. The inaction of a muscle may be caused by some defect in the nerve supply. The nerve supply of the affected muscles is the left inferior laryngeal nerve. This nerve may be affected either at its termination, through its course, or at its origin in the medulla.

(1) Is there any evidence of a neuritis or some change of its nerve terminals?

According to Thomassen, in 99% of the cases of left sided paralysis of the larynx the changes in the recurrent laryngeal nerve are to be found in its peripheral extremities, viz., the vicinity of the larynx. The thoracic portion is quite normal.

(2) Is there any evidence that the nerve is affected through its course?

Because the left side of the larynx is affected rather than the right, an explanation has been sought in the course of the left inferior laryngeal nerve. This nerve differs from the right nerve in its longer course—it is given off opposite the fifth rib from the left vagus, and turns round behind, and gains the inner side of the posterior aorta. Here it lies between the latter and the trachea. It also comes in contact with the bronchial

and tracheal lymphatic glands. It is believed that the nerve is pressed upon or stretched by dilatation of the aorta, by pressure between the latter and the trachea, or by pressure from enlarged bronchial or tracheal glands in the course of strangles, pneumonia, pleurisy, tumours, etc. From the fact that long fine necks are often seen in roarers, Martin supposed that during the development of the body in youth the neck becomes lengthened and the heart pushed back, straining the left recurrent nerve and pressing it at the aorta, so impairing its function. Various authorities, Ferguson in 1838, Lafosse, Trasbot, Duprey, Bouley, Colin, and Tundell have found in isolated cases enlarged thoracic glands or tumours in the neighbourhood of the nerve, or the left inferior laryngeal nerve involved in them. One would expect that if this were so Wallerian degeneration of the nerve would begin at the point of pressure and extend to the periphery, but there is no distinct evidence on this point. Fleming states that in cases of long existing chronic roaring the left recurrent nerve and its filaments have become so wasted that little is left of them except the sheath, and this even is so attenuated that a most careful dissection is required to find it. I have examined some dissection subjects in which the intrinsic muscles of the left side were affected, but did not notice any marked difference in the left inferior laryngeal nerve.

(3) Is there any evidence that the disease of the nerve is central?

In some cases no affection of the inferior laryngeal nerve in its course has been found, even after a microscopic examination, and therefore one must look for some other point at which the disease is located. It is interesting to note that the fibres of the inferior laryngeal nerve come originally from the spinal accessory nerve. It is possible that the condition is a toxic one, and that there is a central lesion which may cause some defect or derangement in the relationship between the respiratory centre and the motor centres for the laryngeal muscles.

6. *What are the predisposing causes of roaring and whistling?*

Heredity is considered to have a very considerable influence in the production of roaring and whistling. The influence may be, and probably is, of the nature of a predisposition. The progeny of roarers do not develop the disease until they are three or four or more years old, *i.e.* until they are being put to strenuous exercise or hard work. Fleming gives a number of instances; Girard, Jun., cited the case of the stallion Misanthrope, two-thirds of whose produce became affected with roaring. Sometimes roaring does not appear till late in life. It has been held by some that if a horse makes a noise when he comes to about eight years old the predisposition is not transmitted. Here is a record of a case which is opposed to that opinion. A great horse-breeder of Livonia had a fine English stallion which when about ten years old became a roarer without any appreciable cause. From this time nearly all his produce were affected, but only when they reached ten years of age. Charon states that 60% of the produce of horses affected with roaring become roarers when exposed to exciting causes. Roaring can frequently be traced through several generations of horses. The transmission of the predisposition is more certain when both parents are affected. In some cases the progeny of roarers have never shown this defect. From Taurus a celebrated racehorse, but a roarer, none of the progeny became affected.

7. *What are the exciting causes?*

The most common exciting cause is strangles. Roaring may also follow diseases of the respiratory tract—laryngitis, bronchitis, pneumonia, pleurisy, and even influenza How these affect the production of the disease is undecided. It may be that it is caused by some toxic action or by pressure by some exudate, *e.g.* in laryngitis on the nerve terminals, or by pressure by enlarged bronchial or trachial lymph glands, or by a consolidated lung, *e.g.* in pneumonia, or by thickened pleura, or by dilatation of the posterior aorta and pressure on the inferior laryngeal nerve. That is to say the exact way in which these diseases affect the inferior laryngeal nerve may not be constant, but may vary considerably. Roaring has been caused by inflammation of the jugular vein as the result of phlebotomy. Feeding with mutta pea (Lathyrus sativus) and lead poisoning have also given rise to paralysis of the muscles of the larynx.

Sometimes roaring and whistling appear suddenly without any apparent cause. One case of the kind was brought to my notice recently. A horse which had been known to be sound for a considerable time was examined by a well known veterinarian and a sound certificate was given. The following day the horse was taken out for exercise and roaring became manifest even at only a moderate pace. The animal remained a roarer.

8. *What is the progress and what is the effect of roaring and whistling?*

As previously mentioned, roaring may appear quite suddenly and without any apparent exciting cause, but as a rule some history precedes the appearance of the disease, *e.g.* an attack of strangles. The rule is that once a horse is so affected it remains for ever afterwards a roarer or whistler. A few recoveries have been noted. For example: A thoroughbred mare, Brigantine, as a two-year-old became affected with roaring, but as a three-year-old the disease disappeared, and the mare won the Oaks, Ascot Gold Cup, and Hurstbourne Cup easily. The disease may come on suddenly and remain stationary or gradually increase. Sometimes roarers become whistlers, but the converse also occurs. Laryngitis, cold, damp weather aggravate the condition, and the distress and noise are less marked when the condition of the animal is good.

Some forms of treatment are occasionally adopted to cause temporary relief; ½lb. of warm butter or glycerine given half an hour before exercise diminishes the noise and distress. Abstention from water for some time before exercise has also proved beneficial, and partial occlusion of the nostril, or bulky food given to a horse have been successful in diminishing the noise, but not in increasing the working capacity. The objectionable features of the disease are the noise, the distress, and the hereditary nature. Probably the pitch of the sound is influenced by the action of the crico-thyroid muscle, which tenses the vocal cords and may influence the difference between roaring and whistling. The distress caused is far greater with roaring than whistling, and greater in some cases than in others.

The loudness of the sound is no indication as to the difficulty in breathing. Many a whistler is noted in the hunting field as one of the best known stayers. Some horses may stay although roaring like bulls. Ormonde, though an undoubted roarer, was able to distinguish himself on the racecourse. But in other cases dyspnœa appears after a time and the animal may be brought to a standstill. No doubt this has something to do with the want of æration of the blood or the condition of the circulation.

9. *What are the diseases from which roaring and whistling have to be distinguished?*

(1) High blowing or trumpeting produced by flapping of the false nostril, quite a normal condition, need hardly be commented upon. It disappears when a horse become distressed or when the pace is forced.

(2) Wheezing is a condition of heavy breathing in which the sound is both expiratory and inspiratory. It is due to narrowing of the bronchial tubes from thickening of the mucous membrane.

(3) Atheroma of the nostril is a sebaceous cyst which forms on the skin of the false nostril, sometimes it

occludes its lumen and presses on the nasal chambers. A noise is then produced during inspiration. It should be observed by actual inspection.

(4) Paralysis of the muscles of the nostrils will also cause dyspnœa and an inspiratory sound, but can easily be differentiated by the appearance of the nostrils.

(5) Thickening of the mucous membrane of various portions of the respiratory tract, tumours, occasionally foreign bodies in the respiratory passages—the nasal chamber, pharynx, larynx, and trachea—fractures of the nasal, turbinated, and maxillary bones lining the nasal chambers, fractures of the laryngeal and tracheal cartilages, or injuries or malformations thereof, will all cause respiratory sounds during exertion by infringing on the lumen of the passage, but these sounds will be generally both expiratory and inspiratory. A polypus in the pharynx may cause intermittent dyspnœa.

(6) Pressure on the pharynx from empyæma of the guttural pouches, and abscesses in connection with the pharyngeal and parotid glands will cause dyspnœa and respiration sounds, but again these are both inspiratory and expiratory. Usually in those cases there is considerable swelling in the parotid region.

(7) Laryngitis, where thickening of the mucous membrane or the submucosa results from an exudate or new fibrous tissue, will also cause respiratory sounds, but the animal is obviously ill, affected with strangles or a similar disease, and the respiratory sounds are both inspiratory and expiratory.

(8) Ulcerative laryngitis, as in glanders, where it affects the vocal cords or arytenoid cartilage, may also cause roaring, because it interferes with the movements of these organs, or because it causes a thickening of the neighbouring mucous membrane. If there is a considerable thickening I should expect a distinct expiratory sound. It is hardly likely nowadays to be a common cause of confusion.

(9) Ossification of the laryngeal cartilages is seldom a cause of abnormal respiratory sounds, and I doubt whether it is a cause at all unless fusion of some of the laryngeal cartilages occur. Calcification of the thyroid cartilage in common, in fact in old horses that cartilage always contains lime salts. If fusion of the cartilages occur then abnormal sounds will be produced both during inspiration and expiration. I have heard of cases of this kind.

(10) Spasm of the glottis is a condition which has been described in the horse. It is a means of explaining those cases of intermittent roaring or whistling where an animal roars or whistles one day and not the next. It causes marked dyspnœa. It is difficult to distinguish from ordinary roaring and whistling at the time of examination of a horse for soundness, and seems to me to be a case in which confusion may occasionally result.

(11) Overlapping of the tracheal rings has also been noted as a cause of abnormal respiratory sound. It would be difficult here to distinguish it unless it affects the tracheal cartilages of the neck, which may be examined and felt.

(12) Sometimes a horse makes a respiratory sound because of circulatory disturbance, as the result of some heart affection. That can be recognised by examination of the pulse or heart after a gallop.

These then are the conditions which have to be distinguished from roaring and whistling.

I do not intend, gentlemen, to deal with the treatment of this condition. I will only say that for prevention roarers and whistlers should not be bred from, and great care should be taken of horses during the course of, and recovery from, strangles and respiratory diseases. No severe exercise should be permitted during this period, and a course of potassium iodide, arsenic tonics administered.

In the discussion I should like you to confine yourselves to answering the questions I have put to myself in the paper:

1. What is roaring or whistling?
2. What are the symptoms?
3. What is the cause of the sound?
4. What is the pathology of the condition?
5. How is this paralysis of the intrinsic muscles of the left side brought about?
6. What are the progress and effects of the condition?
7. What are the predisposing and exciting causes?
8. What are the diseases from which roaring and whistling have to be differentiated, and how would you differentiate?

(To be continued).

Charge of Cruelty to Whales.

The Legal meaning of Captivity.

A novel case, in which proceedings were taken under the Wild animals in Captivity Act, was heard at the Penzance County Court, on Saturday, Aug. 5.

On July 1 a number of whales belonging to the species known as "pilot whale", or "ca'ing whale" (*Globicephalus melas*) were brought up by the tide and left stranded and helpless on the beach, where they were surrounded by a large crowd of people. No similar occurrence had taken place at Penzance for many years, and there appears to have been no one present with any knowledge of whales; and in some cases attempts were made to kill the animals with revolver shots; in other cases whales that were already wounded but still alive, and others that had not been shot, were slashed with knives and otherwise ill-treated. With respect to the wounding with knives, three summonses were taken out by the Royal Society for the Prevention of Cruelty to Animals, at the instance of Inspector Steele. Mr. Stuart Bevan appeared in support of the summonses, and Mr. W. T. Lawrance defended.

The case against Alfred Rogers, a billposter, was taken at length. Two police constables, Inspector Steele, and a private spectator were called to prove the facts. It was stated that Rogers had been seen with a clasp knife in his hand, the knife and hands being covered with blood, and that he had cut a whale. He had been warned by the constables, and had had an altercation with a bystander on the subject, but had afterwards taken a small clasp knife from his pocket and had made a deep cut some 4 feet in length along the skin of the whale, the animal lashing its tail, snorting, and showing by its heavy movements that it was suffering severe pain.

Dr. Chalmers Mitchell, F.R.S., Secretary of the Zoological Society, stated in evidence that whales were warm-blooded, air-breathing mammals, with brain and nervous system of a high type, that the cutting described must have caused great pain and could not be regarded as a proper way to attempt to kill the animals.

For the defence it was stated that Rogers intended by his actions to put out of their misery animals that had been wounded by revolver shots.

Mr. Bevan urged that it was immaterial whether the animals had come into captivity by the agency of man or the operation of nature, that at the time of the alleged acts of cruelty they were actually in captivity and were entitled to protection until they were released by the rising of the tide. It was contended in reply that the Act applied to wild animals, such as those in menageries, brought into captivity by man for his own purposes.

The Bench found that the defendant had unreasonably caused unnecessary suffering. They held, however, that there was no captivity within the meaning of the Act, and dismissed the cases.—*The Times.*

OFFICERS' TRAINING CORPS, ROYAL VETERINARY COLLEGE OF IRELAND CONTINGENT.

EASTERN COUNTIES V.M.S. AT YARMOUTH, SEPT. 7TH, 1911, Mr. T. G. HEATLEY, *President.*

DISEASES OF ANIMALS ACTS 1894 TO 1910, SUMMARY OF RETURNS.

Period.	Anthrax. Outbreaks Confirm'd	Anthrax. Outbreaks Reported	Anthrax. Animals Confirm'd	Anthrax. Animals Reported	Foot-and-Mouth Disease. Outbreaks	Foot-and-Mouth Disease. Animals.	Glanders (including Farcy) Outbreaks	Glanders (including Farcy) Animals.	Counties Affected Animals Attacked	Sheep Scab. Outbreaks	Swine Fever. Outbreaks.	Swine Fever. Slaughtered. *
GT. BRITAIN. Week ended Sept. 16	13		14				7	12		2	37	394
Corresponding week in 1910		14		14			13	37	Essex 2	1	18	305
Corresponding week in 1909		19		23			13	44		3	17	139
Corresponding week in 1908		10		11			14	32	Hants 6	2	30	143
Total for 37 weeks, 1911	612		761		8	425	145	237	London 2	309	1840	21517
Corresponding period in 1910		1041		1249	2	15	270	818	Middlesex 2	344	1037	9472
Corresponding period in 1909		940		1255			395	1420		474	1290	11713
Corresponding period in 1908		785		1049	3	112	597	1840		641	1522	8843

Board of Agriculture and Fisheries, Sept. 19, 1911.

	Parasitic Mange (outbreaks)
IRELAND. Week ended Sept. 16	1
Corresponding Week in 1910	...
Corresponding Week in 1909	...
Corresponding Week in 1908	1
Total for 37 weeks, 1911	53
Corresponding period in 1910	56
Corresponding period in 1909	67
Corresponding period in 1908	31

	Anthrax. Outbreaks Confirm'd	Anthrax. Outbreaks Reported	Anthrax. Animals Confirm'd	Anthrax. Animals Reported	Foot-and-Mouth Disease. Outbreaks	Foot-and-Mouth Disease. Animals.	Glanders (including Farcy) Outbreaks	Glanders (including Farcy) Animals.	Sheep Scab. Outbreaks	Swine Fever. Outbreaks.	Swine Fever. Slaughtered. *
IRELAND. Week ended Sept. 16	...	...	...	...	...	...	...	...	4	5	30
Corresponding Week in 1910	...	...	...	...	...	...	...	...	6	...	...
Corresponding Week in 1909	...	...	...	...	...	...	...	...	1	2	82
Corresponding Week in 1908	...	...	...	...	...	...	...	...	1	5	113
Total for 37 weeks, 1911	...	7	14	...	...	2	3	258	97	1617
Corresponding period in 1910	...	5	8	...	...	1	2	355	73	1707
Corresponding period in 1909	...	5	5	...	...	...	...	307	85	1507
Corresponding period in 1908	...	6	9	...	...	...	...	277	140	3084

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Sept. 18, 1911

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

Parasitic Mange Order—V.S. Fined.

At the Birkenhead Police Court on September 16th, Warwick Fowle, veterinary surgeon, was summoned for having omitted to give notice to the police of the fact that a horse in his possession or charge was suffering from parasitic mange. He said he pleaded guilty to a technical offence, unwittingly committed.

Mr. Norman Smith, Assistant Prosecuting Solicitor to the Corporation, appeared in support of the summons.

On Saturday night, August 26th, a man named Victor Janson, a Liverpool team owner, brought a horse to Mr. Fowle's premises, and left it for treatment, stating that he had no stable to put it in. Mr. Fowle told him it was suffering from a skin disease, and he ought to report it. Janson did not fetch it away until September 1st, when he took it to Mr. Thomas Dobie, another veterinary surgeon, who found it to be suffering from parasitic mange, scrapings on different days showing parasites. Mr. Dobie reported the case.

Evidence was given by Janson, Mr. Dobie and Inspector J. R. Carnie. In cross-examination Mr. Dobie said it was sometimes extremely difficult to find the parasites, even when suspicion existed.

In defence, Mr. Fowle said he took scrapings on the Sunday morning and failed to find any parasite, but he told Janson it was a suspicious case, and that he had better report it. Janson promised to take the horse away on the Monday morning, but he never came until Friday, and meanwhile he (defendant) kept it isolated, and washed and dressed it as thoroughly as if parasites had been discovered. He made repeated examinations and found no parasite. On the Friday he told Janson to at once report the case as "suspicious," considering that the onus rested with him (Janson), as he (defendant) could not certify actual parasitic mange.

The Bench said a technical offence had been committed, and they fined defendant £1 and 9s. 6d. costs.—*Birkenhead News.*

Personal.

CRABB—On Sept. 15th, at 8 Carson Road, Dulwich, S.E., the wife of Alexander Crabb, M.R.C.V.S., of a daughter.

The Witham Committee under the Diseases of Animals Act have appointed Mr. A. J. HORNER to succeed Mr. Ainsworth Wilson as veterinary inspector for the Witham Police Division.

Mr. G. H. PICKWELL, Locum, leaves England on 23rd inst., for Singapore, to relieve Mr. C. W. Abrams, who returns to England for a few months.

Mr. AINSWORTH WILSON, who had been in practice at Witham for seven years as a veterinary surgeon, left Witham on Thursday, Aug. 31, for the Royal (Dick) Veterinary College, Edinburgh. Mr. Wilson has been chiefly known at Witham, outside his professional engagements, as a prominent advocate of the bowling pastime. He was principally instrumental in forming the Essex County Bowling Association, to which he acted as hon. sec. until March last. He was runner-up in the Single-handed Competition for the R. A. Jones' Cup in 1909, being beaten in the final by Mr. R. Jack, of the Essex County Bowling Club. He has played in two finals for the hundred-guinea challenge cup, having won both his rinks. At Witham Mr. Wilson has taken for several years a leading part in the affairs of the local bowling club. The departure of Mr. and Mrs. Ainsworth Wilson is greatly regretted at Witham, although his friends are pleased at the professional advancement he has secured.

On Wednesday evening Messrs. A. W. Garrett and J. Croxall, vice-captain and secretary, respectively, of the Bowling Club, waited upon Mr. Wilson, and on behalf of the members presented him with a case of pipes, accompanied by a letter from the President, Mr. F. P. Bawtree.—*Essex County Chronicle.*

ARMY VETERINARY SERVICE.

Extract from *London Gazette*,

WAR OFFICE, WHITEHALL, Sept. 15.

REGULAR FORCES. ARMY VETERINARY CORPS.

The undermentioned to be Lieuts. (on probation): G. F. Steevenson. Lieut. F. B. Hayes, from the Unattached List, T.F., O.T.C., Royal Veterinary College of Ireland, William Halstead, Francis Hogg, R. F Stirling. Dated Sept. 16.

Sept. 18.

TERRITORIAL FORCE. ARMY VETERINARY CORPS.

L. W. W. Lloyd to be Lieut. Dated May 19.

OBITUARY.

HAROLD SESSIONS, F.R.C.V.S., F.R.G.S., Henley-on-Thames Graduated, Lond: May, 1891.

The announcement of the death of Mr. Harold Sessions will be received with much regret in Brighton and Hove, where he was widely known and esteemed. A member of a well-known Gloucestershire family—his grandfather, Mr. Jesse Sessions, was one of the most popular Mayors Gloucester has ever had—the deceased was, as a youth, a farm student with Messrs. C. and E. Robinson, at Saddlescombe, and on their advice decided to qualify as a veterinary surgeon, a profession for which he had exceptional aptitude. He distinguished himself at the Royal Veterinary College, winning the medal for the first student of his year, and he afterwards acquired Tongdean Farm in partnership with young Mr. Rowntree, a member of the celebrated cocoa manufacturing firm of that name. At the same time Mr. Sessions practised as a "vet." and not long afterwards acquired premises in Goldsmid Road, Hove, where he became a very busy man in his profession, in which, although handicapped by a lack of physical reserve, he, by indomitable perseverance and application, attained to a considerable degree of eminence. Among other appointments he held those of veterinary lecturer at the East Sussex County Council's Agricultural College, Veterinary Inspector of the Boyal Agricultural Show at Maidstone, and Veterinary Surgeon to the Southdown Hunt. Failing health compelled him to relinquish a highly lucrative practice, and travel abroad.

He served on three of the Army Remount Commissions—in Spain, the Argentine, and the United States, crossed the Andes twice, visited nearly every State in North America west of the Missisippi, and travelled through a large section of country which had previously been practically unexplored. He was the author of "Two years with Remount Commissions," a work which attracted much attention, dealing as it did with the whole question of remounts, past and future, from an agricultural, national, and military point of view. Coming back re-established in health, he became associated with one of his brothers in a big farming enterprise on the Welsh border, and, in connection with it started a business in importing Spanish donkeys for mule breeding. This involved repeated visits to Spain, and purchases he made were exported to mule breeding countries. After a time he moved this branch of his business to Henley-on-Thames. About eighteen months ago his health again broke down, and he was compelled to relinquish active business. He had since been living at Dawlish in Devonshire, and more recently paid a visit to Switzerland with the hope that the change would prove beneficial to his health. He has passed away at the comparatively early age of 45, his death being attributed to heart failure. When in Sussex Mr. Sessions followed the hounds regularly, and was a great favourite with members of the Southdown Hunt. His wife, who, with several children, survives him, is a daughter of the late Canon Gell, formerly Rector of Edburton.—*Sussex Daily News.*

Death of a Scottish Veterinary Surgeon

The oldest inhabitant of the parish of Kilbarchan died on Tuesday evening, the 12th inst. Mr. Robert Lang, veterinary surgeon, Main Street, Bridge of Weir, was born in March, 1814, and had lived under six Sovereigns. Mr. Lang was thus in his 98th year. He was born within 100 yards of where he died, his father, a blacksmith by trade, and as horseshoers the family had a wide reputation. After completing his apprenticeship Mr. Lang studied for the veterinary profession in Edinburgh, and qualified in 1838. He was the doyen of the profession in Scotland. In his later years he was afflicted with deafness, but his other faculties were little impaired. As a young man he joined the Renfrewshire Yeomanry, and was called out to take part in quelling the Greenock Riots. He was a keen Conservative, and remembered how during the election times of the Reform Bill the windows of his father's house were wrecked by a Radical mob from Kilbarchan on account of his Tory proclivities. An inveterate smoker, Mr. Lang up to his death never smoked less than four ounces of tobacco a week.—*Glasgow Herald.*

"AN UNUSUAL SKIN AFFECTION OF CATTLE." (p. 185)

Sept. 21st.

P.S.—Since writing you on the above, I have seen a typical case of the disease in a milch cow the property of a suburban owner, about half-a-mile from town, and in another district. This cow was the only animal kept, and two days ago showed swelling of both knees, and fissures at the flexures of these joints. One fore-leg is extensively swollen, and the fissures are discharging an amber-coloured glutinous fluid which forms rapidly into crusts. At the posterior aspect of the other knee an ulcer has developed. No other lesions are present, and beyond marked stiffness in progression the animal seems in good health.

E. WALLIS HOARE.

GENERALIZED PERITONITIS.

Sir,

Capt. Rainey asked a very interesting question in your last issue, viz., "Is generalised peritonitis possible as the result of "chill"? My experience is too slight to enable me to give a positive answer, but I remember a case which certainly seems to suggest a reply in the affirmative. It occurred many years ago. A light cart horse was turned out to grass on account of lameness. Through the field ran a small stream or beck with steep sides, say four feet deep by the same in width. At the bottom was a trickling stream of water about 8 to 10 inches deep. The horse was seen in the evening apparently well, and was found in the morning in the ditch or stream. With great difficulty he was got out and led to a loose box about a quarter of a mile away. He was covered with clay and mud as though he had struggled violently, and was much exhausted. Probably he had been some hours in the water.

I saw the case about three hours after he was released. The pulse and respirations were both increased, and there were some signs of colic, but he never lay down till he fell to die next day—about thirty hours. I remember the case well. because my diagnosis hovered between pneumonia and colic, and on looking up some notes on diseases which used to appear in early editions of Finlay Dun's Materia Medica I found a sentence to the effect that "the symptoms of peritonitis are a mixture of those of pneumonia and enteritis."

Post-mortem examination disclosed only slight effusion into the abdomen with some soft adhesions, and an angry red appearance of the peritoneum lining the abdomen.

—Yours truly,

W. H.